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ABSTRACT

This report investigates how administrative complexity in funding and personnel of American public school districts varies depending on local, state, and federal funding environments. The analyses are based on a data set integrated from several national data sources describing school districts in the 1970s. As hypothesized in the study, dependence on federal funding, which takes the form of complex and fragmented programs, generates more administrative positions and expenditures than do the other levels. State funding, which reflects legitimated and integrated state control over public education, creates the least administrative intensity. High levels of local funding, reflecting dependence on an environment that is complex but not highly formally organized, generates intermediate levels of administrative staffing and funding. Twenty-one references, an "Overview of Categorical Educational Programs" chart and five tables are appended. (21 (Author/CJH)

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ABSTRACT

Centralization, Fragmentation, and School District Complexity

We investigate how the administrative complexity (in funding and personnel) of American public school districts varies depending on the importance of local, state, and Federal funding environments. The analyses are based on a data set integrated from several national data sources describing school districts in the 1970s. Dependence on Federal funding--which takes the form of complex and fragmented programs--generates more administrative positions and expenditures than do the other levels, as hypothesized. State funding--reflecting the legitimated and integrated state control over public education--generates the least administrative intensity. High levels of local funding--reflecting dependence on an environment that is complex, but not highly formally organized--generates intermediate levels of administrative staffing and funding.

CENTRALIZATION, FRAGMENTATION AND SCHOOL
DISTRICT COMPLEXITY

In this paper, we examine empirically the effects of the institutional environment on the administrative component of American public school districts. These units function in the complex and many-layered structure of the American educational system, with legitimated pressures coming in from parents and community groups, states, the national government, and a wide variety of professional and interest groups organized at all these levels. Their situation differs radically from that of similar schooling organizations in, for example, highly centralized national educational systems, where such organizations often function as rather simple subordinate units in a sovereign national bureaucracy.

Our study examines the effects of the changing American institutional context on the administrative load built into school district structures. We use a unique data set putting together much information on school districts to get at two main ideas: First, that expanding Federal involvement in education, given its fragmented organizational character, especially expands administrative burdens at the school district level. And second, that the expansion of state involvement, given the legitimated sovereignty and more integrated bureaucracies operating at the state level, lowers the administrative complexity or burden built into school district structures.

The environment of U.S. school districts has changed dramatically over the course of this century. From a situation in which virtually all funding and control resided exclusively in the

local community, the role of both state and national governments has gradually increased.

Prior to 1930, localities provided more than 80 percent of school revenues, the states less than 20 percent. Though the state share reached 30 percent just before World War II, it did not edge above 40 percent until 1973, by which time there was also a visible--through always small--federal contribution. The local share, which in 1973 was down to 50 cents of the school dollar, continued to erode during the past decade until in 1979, for the first time ever, the state share slightly exceeded the local contribution. (Doyle and Finn, 1984)

Because these changes have not occurred uniformly--there is great variation among states in school funding and control arrangements and among districts in the amount of support received from federal sources--it is possible to examine the impact on district organization of cross-sectional variations in their environments. We employ data compiled from several national educational surveys pertaining to the universe of school districts in the U.S. as of 1977 for this purpose.

By many lines of theory, organizations facing multiple and complex environments tend to be complex in their internal structures. However, organizational responses to environmental complexity are expected to vary according to the nature of complexity confronted. We explore these matters by examining the effects of varying environmental conditions on the administrative complexity of school districts.

Theoretical and Research Background

Earlier organizational theories viewed organizational structure--in particular, the complexity of the administrative component--as derived from the nature of technical tasks performed by organizations. (See Woodward, 1965; Perrow, 1967; Thompson, 1967; Galbraith, 1973.) This line of argument, however, provides little leverage in explaining public school organizations, which tend to carry out basically similar tasks but exhibit wide variation in size and complexity. (See Meyer and Rowan, 1978.) Failures to account for the characteristics of school organizations, as well as inadequacies in accounting for much structural variation among many other types of organizations, have led theorists to shift from a focus on technology as the primary determinant of structure to emphasize the important role played by the environment. Organizational environments vary in the complexity of resource and power arrangements (Pfeffer and Salancik, 1978) as well as in the extensiveness of their wider structures and legitimating rules (Meyer and Rowan, 1977; DiMaggio and Powell, 1983). In this paper, we build on these conceptions, seeing the organizational structures of American school districts as created and shaped by the locus and amount of resource flows, power processes and surrounding structures.

In order to further specify the argument, it is useful to conceive of the environments of schools as varying along several dimensions: structuring, centralization, and fragmentation.

Structuring refers to the extent to which there has developed a logic that supports the creation of specialized, interrelated organizations or identifiable groups in the wider environment. The idea is that the more structured the environment, the more specific

interests take on an organizational form. Centralization refers to the extent to which decisions are made at higher rather than lower levels within the environment. Fragmentation refers to the extent to which decisions made at any given level in an environment are integrated or coordinated. It should be clear that we view the environment from the standpoint of a specific organization--in this case, the school district. The environment of the district consists not only of the demographic, socio-economic and political forces surrounding it but also of the more encompassing organizational systems that develop at regional, state and national levels. Indeed, in the present analysis, we concentrate attention on the impact of these wider systems.

The impact of environmental complexity on the administrative components of organizations depends on the particular structuring of the environment. When the environment itself is highly structured, containing many varieties of formally structured interests--e.g., professions, formal associations, regulatory agencies--this type of complexity is especially likely to generate administrative expansion in particular local units such as school districts. When, on the other hand, the complexity of the environment is more diffuse, taking the form of multiple and shifting political interests, pressures and constituencies, the local units may be highly penetrated, but their response is less likely to be reflected in increased formalized complexity, and thus in bureaucratic expansion. The multiple demands of the latter, less rationalized situation are expected to be met less by an expansion of formal administrative roles than by the informal, behavioral adjustments of participants, both administrators and

rank-and-file teachers, as they attempt to accommodate and fend off various pressures and demands.

The effects of environmental centralization and fragmentation on the administrative complexity of organizations must be considered in combination. In the absence of fragmentation, centralization of authority in the environment is expected to reduce the size and complexity of administration within organizations. That is, when centralization is unitary, subordinate organizational forms are predicted to exhibit leaner and smaller bureaucratic components because their environments are less complex and convoluted. By contrast, fragmented centralization will produce expanded bureaucracy. The actions of multiple, semi-independent decision centers operating at remote levels of the environment create a type of complexity that is expected to produce enlarged and elaborated administrative units in local organizations responsive to these centers. (See Meyer and Scott, 1983.)

In the section below, we consider how these general distinctions and expectations are applicable to American school districts and their environments.

Evolution of Educational Environments and School Organizations

Nineteenth and early 20th century American schooling operated mainly within a local organizational context. State statutes provided a general framework supporting education with, for example, rules specifying attendance requirements for pupils, the length of the school year, and minimum qualifications for teachers. But most educational decisions were made within local communities, first at the

school and then increasingly at the district level. Funding provisions were also predominantly local.

The relevant environment was also local, but not necessarily simple. Education affects a wide range of individuals and groups and many specialized interests--from economic and class groups to familial and religious ones--so that schools are often a prime focus of public attention and political pressure. The multiple functions and meanings attributed to education tend to give rise to relatively complex and active environmental pressures, often reflected in boisterous school board or school bond elections and prolonged disputes over the selection of library books or a site for the new school.

We suggest that the local environment of schools often entails complexity but not of the sort that is highly structured. Multiple, urgent and shifting pressures are placed upon school systems, making demands upon board members, principals, and teachers, but they are not likely to foster much administrative expansion. Reactions are more likely to take the form of informal adjustments, changes in role emphases or priorities, and informal cooptation. In the one-school district, much of the administrative burden was not recorded in the elaboration of formal structure, but in the broad and nuanced definitions of citizen, school board, principal and teacher.

Beginning late in the 19th century and proceeding up to the present, there has been continuing consolidation of schools. Early in this period, urban school reformers sought to integrate the many schools into a few districts, each with a single sovereign board representing the entire community and managing the schools through a more efficient, bureaucratic district office. Tyack (1974) has chronicled the history of this movement and has characterized its

driving ideology as an intent to create and impose on all schools "the one best system." This movement has made steady progress, albeit its development has been slower and has continued longer than is generally recognized. Data we have compiled and reported elsewhere reveals that the consolidation of schools and districts has continued steadily well into the 1970s. Mean school size has increased from 142 to 440 in the period 1940 to 1980 while the mean number of school districts per state has declined eight-fold, from 2437 to 330, during the same period (Meyer et al., 1985). This type of centralization has been associated with some bureaucratization of the system: superintendents and their administrative staffs expand over time, and there is increased formalization of administrative roles both at school and district levels. But much of the complexity of the local environment continues to be managed informally.

The 20th century has witnessed a great expansion of the role of the states in education. In recent decades state funding has risen to match and surpass levels of local funding, and state authority has expanded in all the domains of education (e.g., curriculum, accreditation, setting minimum standards, personnel certification, and meeting the needs of special groups). There has been considerable conflict and much variability in this process, although state authority is constitutionally sound. In the earlier period, and in the present, there is much genuine and legitimated local authority in education, but almost all of it in principle has derived--from the very beginning of mass education--from the state. Thus, even in the 19th century, states could legitimately impose requirements on local schools: compulsory attendance laws, teacher certification requirements, and all sorts of other specifications. In the early

period, these control attempts were weak in an organizational sense-- e.g., the median American state department of education contained a staff of two in 1890 (NEA 1931, p. 5), but the political, legal, and cultural principles of state sovereignty were well established. And as centralization and consolidation has proceeded throughout the 20th century, it has conformed to well established organizational control principles.

Thus, the expansion of state funding and decision making can take the form of direct organizational authority. The impact on local organization, following the lines of theory discussed above, is clear. The addition of a strong new level of authority in the environment in one sense adds complexity to the situation of the local school district, but in a more important sense simplifies it. The environment becomes more centralized but also more unified: the organizational rules constituting schooling become more clear, better specified, more uniform and integrated than before. The result is bigger and more standardized school districts, each having a common and highly authorized form, with relatively small administrative component.

Although the general trend toward increased state authority over education is clear, states vary enormously in the extent to which funding has become centralized, the development of the administrative and professional capacity of the state educational office that can work to unify educational policy, and the political culture supporting a more centralized and integrated view of educational decision making. (See Burlingame and Geske, 1979; Fuhrman and Rosenthal, 1981; Kirst, 1978; and McDonnell and McLaughlin, 1982.) This variability among

states is exploited in our design to test the effects of increased state centralization and unification on local district administration.

Since the early 1960s as a part of the Great Society reforms initiated under Presidents Kennedy and Johnson and continuing through the 1970s, the Federal government has become involved in the funding and management of education. Prior to this time, Federal efforts in education had been highly restricted and conducted with relatively low levels of direct authority. The most prominent Federal programs had been in the area of vocational education, developing in the 1920s, but this effort was limited in funding and largely marginal to main-stream educational programs and institutions. This was due largely to the lack of constitutional provision for a Federal role in education (Timpane, 1975).

The U.S. constitutional pattern--differing greatly from that obtaining in many other modern states--has also heavily influenced the evolution of Federal funding and authority in education in recent decades. Rather than expanding direct national controls in the management of education, reform efforts during the 1960s and 70s took the form of categorical or special-purpose programs. Programs were variously developed for the benefit of minorities, the poor, the handicapped, female students, to meet special national defense needs, to improve teaching resources and libraries, and so on. None was concerned with the general support and management of education or the general specification of its primary goals or core processes. The diversity and specificity of these programs is suggested by Figure 1, which lists the major Federal funding programs as of 1977. Their funding impact on local school organizations is suggested by Table 1,

which reports the level of funding received from each program by the average school district.

Complexity in the environment has been greatly enhanced by these developments. Not only have decisions become more highly centralized, but the actors involved are both more structured and more fragmented. The various programs establish their own rules of eligibility, of operation, of accounting. Although the bulk of these funds were routed through the state educational agencies, "by 1979, 25 percent of all federal grants-in-aid funding bypassed state governments and was allocated directly to local jurisdictions" (McDonnell and McLaughlin, 1982: 7). Even though the amount of Federal funding never accounted for more than a small fraction of total educational funding--the upper limit reached in 1977 was less than ten percent--the organizational impact on school districts appears to have been considerable. According to our lines of argument, the combination of increased centralization, increased structuring and increased fragmentation should greatly expand the administrative burden imposed on the local level. In a longitudinal analysis within five states, Freeman, Hannan, and Hannaway (1978) show substantial increases in district administrative staff associated with higher levels of Federal funding.

Thus, by 1977 at the time the data reported here were collected, the environment for U.S. schools was quite complex. Controls at local levels did not disappear, but were increasingly supplemented by programs and requirements developed at state and federal levels. Schooling is under the simultaneous control of parents, local interests and boards, professionals, state authorities and a variety of federal agencies. While the

environment for all schools is more complex today than formerly, we take advantage of existing variability among districts and states in order to examine the effect of these differences on school district structure.

Design and Hypotheses

A direct examination of the arguments presented above would investigate the effects that reporting requirements and program fragmentation have on administrative complexity at the district level. We do not have direct measures of environmental complexity, and rely on the results of much past research (e.g., Bankston 1982; McDonnell and McLaughlin, 1982) and the evidence of Figure 1 to show that Federal programs embody the most complex, and state programs the least complex, sets of demands on the local district. We thus take sources of revenue to embody distinctive degrees of complexity, and examine the relation between the district's sources of revenue and its organizational structure.

The structure of the district organization is measured in two distinct areas: administration and instruction. We argue that environmental complexity is mirrored in the complexity of administrative roles, enabling the organization to buffer the actual work done from external change and demands. The corollary is that instruction, the technical work of the district, should not be much affected by environmental complexity.

As a baseline, we expect that more revenue of any sort tends to expand the district organization along any dimension. We thus focus on the relative effects of the sources of revenue, and not on their absolute effects. Our hypotheses are:

1. Federal funding involves especially large increases in district administrative work compared to those of state or local funding.

2. State funding involves lower increases in district administrative work than do either Federal or local funding. Since the local environment is less organizationally structured, we expect the impact of its complexity on formal administration to be less, but still perhaps greater than the state-level effort.

3. There are fewer significant differences between Federal, state, or local funding effects on the amount of district instructional roles and expenditures.

As an extension of this line of reasoning, we take advantage of a measure of state programmatic centralization developed by Wirt (1978) to argue:

4. The centralization of a state's educational system lowers the degree of administrative complexity of school district organizations, independent of any funding effects.

Our main interest is to explore the Federal effect suggested by Hypothesis 1, since the Federal system is highly unusual in its degree of bureaucratic fragmentation, providing the best test of our central theme. We can go further than a simple aggregated Federal effect by examining the effects of specific Federal programs. Over time, these programs have been captured by the state departments of education; the funding channels have become less uncertain and the reporting requirements less extensive. Recently instituted Federal programs should thus have larger effects on district administration than older ones. In our data, this involves a comparison between the ESEA

programs and the older Federal vocational programs. Our final hypothesis is thus:

5. Funding from newer Federal programs leads to more expansion of district administration than does funding from older Federal programs.

Data

Data for this study are taken from four independent governmental surveys done in 1976-77. These are the Bureau of the Census' Survey of Local Government Finances, the Elementary and Secondary Staff Information Survey of the Equal Employment Opportunity Commission, the Elementary and Secondary School Civil Rights Survey of the Office of Civil Rights, and the Tabulations of Census Data by School District done by the National Institute of Education. These surveys can be used in conjunction because of the important work of the National Center for Education Statistics in merging and editing the files. Since each survey has its own unique history, this combination of data from different sources is only available for 1975-76 and 1976-77.

With the exception of the personnel data supplied by the Equal Employment Opportunity Commission, each survey attempted to reach all 16,853 school districts in the nation. Due to missing cases and data errors, the analyses involving expenditure variables employ 9,844 cases, and those involving personnel variables use 5,579 school districts.

Below is a description of the variables in the analyses. Table 2 gives their means and standard deviations.

Dependent Variables

Administrative Positions--the total number of district and school administrators. School administrators include principals and assistant principals. District administrators include superintendents, assistant superintendents, and special services administrators. Collected by the Equal Employment Opportunity Commission, Fall 1976.

Teaching Positions--the total number of teachers in the district, including elementary and secondary school teachers and teacher's aides. Collected by the Equal Employment Opportunity Commission, Fall 1976.

Administrative Expenditures--Total administrative expenditures as measured by the Bureau of the Census 1976-77 Survey of Local Government Finances.

Teaching Expenditures--Total instructional expenditures, also measured by the Bureau of the Census 1976-77 Survey of Local Government Finances.

Independent Variables

State Funds--Total revenue received by the district directly from the state. All revenue variables were collected by the Bureau of the Census 1976-77 Survey of Local Government Finances.

Local Funds--School district revenue derived from local sources. These include the property tax, the parent government (local city or county), and revenue from other school districts.

Federal Funds--School district revenue from the Elementary and Secondary Education Act (ESEA), the National Defense Education Act

(NDEA), Federal Vocational Programs, School Lunch monies, and direct Federal aid through Public Laws 815 and 874.

State Centralization Index--Wirt's (1978) measure of the programmatic authority of the state department of education. Wirt did content analyses of state law involving items such as accreditation, textbook, and attendance requirements, and combined these into an index varying between 0 and 6.

Enrollment--Total enrollment in the district, measured by the Bureau of the Census, 1976-77 Survey of Local Government Finances and edited by the National Center for Education Statistics.

Urban, Suburban--two dichotomous variables (Rural is the omitted category), developed from a Bureau of the Census code based on population count.

Black Students--The total number of black pupils in the district, collected by the Office for Civil Rights, Elementary and Secondary School Survey, Fall 1976.

Poor Students--The total number of children between 6 and 17 in the district who were classified as poor by the National Institute for Education, Special Tabulations of Census Data by School District.

South--A dummy variable coded 1 if the district was in a southern state.

Analyses

The models reported here are multivariate regression analyses of the effects of levels of funding from local, state, and Federal sources on school district administrative staff size and expenditures. The control variables described above are included in the models. For

comparative purposes, effects of the same independent variables on district instructional staff size and expenditures are also estimated.

Since our dependent variables are raw staff size and expenditure figures, rather than ratios of these figures to, for instance, enrollments, they are naturally scaled to district size. This poses no problems for examining the effects of our main independent variables--funding dollars from various sources--since these are also naturally scaled to size. This is also true of a number of our control variables, such as number of black students or students from families below the poverty line or district enrollment itself. The other control variables do not have this built-in property. It makes sense to hypothesize that the effects of state educational centralization, the urban or suburban character of the district, and location in the South, affect administrative staff size or expenditure in proportion to the size of the district. For instance, location in a centralized state might lower the number of administrators in a small district by less than one full position while the same effect in a large district might amount to a half-dozen positions. Thus, in our analyses, the effects of state centralization, urban and suburban location, and Southern location, are estimated with these variables interacted with the enrollment of the district.

In estimating the equations, ordinary least squares techniques are not really appropriate. All our variables, both independent and dependent, are very highly skewed in distribution, since they all reflect size variations, which are very great. Thus the residuals in ordinary least squares analyses are very far from normally distributed. Bigger districts have much bigger staffs, more funds of all sorts, and will tend to have larger errors in absolute terms. Our

solution is to weight all terms in the equations by the reciprocal of district enrollment, for estimating purposes--i.e., to use weighted least squares estimation. The interacted dichotomous variables thus in practice revert to dichotomous ones: the number of poor students becomes the percentage of poor students, and the amounts of revenue become the amount of revenue per student. This produces analyses with better distributed residuals, as well as less skewed variables.

Results

Table 3 reports multivariate analyses of the size of district administrative staff (Equation 1), and of administrative expenditures (Equation 3). For comparative purposes, effects on instructional staff size (Equation 2) and expenditures (Equation 4) are also presented.* To simplify presentation, the staff size estimates are made in terms of 1/1000 of a position. Table 4 presents the same equations but disaggregates the Federal effect into ESEA, Federal Vocational Education, and NDEA sources. Table 5 facilitates comparisons of revenue effects by showing ratios of the coefficients of Federal, state, local, and ESEA revenues.

The analyses support the hypothesis that Federal funding dollars have much larger effects on administrative expenditures and staffs than do local and state funding. Table 5 shows that, measured in terms of administrative positions, Federal funding produces twice as many administrators as local funding, and five times as many as does

* We also examined effects on reported district professional staff size, on the hypothesis that fragmented Federal programs might increase this variable. The results are unconvincing, and we omit the analysis for simplicity.

state funding. The expenditure effects differentials are both on the order of two to one. And these relative differences are not duplicated in the regressions on instructors or instructional expenditures (for the latter there is essentially no difference between the estimated effects of Federal, state, and local sources of revenue).

The hypothesis that local funding generates more administrative personnel than state funding is supported-- its effect is about three times as large. In all other areas, including administrative expenditures, there is little difference between the two sources. Thus, funding from the (presumably complex but less structured) local environment expands differentiated administrative roles, but not expenditures. It can be assumed that given individuals take on more roles.

The effects of programmatic centralization by the state are also mixed. Where states have more programmatic authority (over attendance rules, textbooks, and so on) school districts have smaller administrative expenditures. They also have lower instructional expenditures, but the effect is not as large. The size of the administrative component is not significantly affected by state centralization at the .01 level, however, while the number of teachers does decrease.

The effects of the control variables, in these analyses, seem straightforward. Enrollment by itself naturally increases administration and especially teaching staffs and expenditures. Southern, suburban, and urban districts have lower administrative expenditures, but not staff sizes. Districts with more poor students have higher administrative expenditures and staff sizes,

though the same result does not hold for the presence of more black students.

Table 4 reports the results when Federal funding is broken down by its main component programs, on the hypothesis that the more recent Federal reforms generate higher administrative burdens than do older programs such as Vocational Education, or the National Defense Education Act programs. The newer reforms of the 1960s and 1970s are covered in the Elementary and Secondary Education Act expenditures.

ESEA revenues do generate high levels of administrative expenditure and staffing. Table 5 makes clear the effects of ESEA funding: an ESEA dollar creates five times the administrative expenditures of a state or local dollar; its effects on administrative positions are seven times larger than the local effects, and twenty times larger than state effects. While its effects on instruction are also larger than those of other sources, they are not nearly so disproportionate.

Vocational education--the oldest and most routinized Federal program--shows much lower effects. NDEA revenues have substantial effects on administrative positions, but negative effects on expenditures, particularly instructional expenditures. This probably has to do with the kinds of districts that are targeted for NDEA funds. The coefficients of the control variables in these analyses remain similar to those reported in Table 3.

Overall, our analyses provide strong support for Hypothesis 1--the idea that Federal funding especially increases district administrative loads--and also for the idea (Hypothesis 5) that

this is especially true of the more recent Federal programs. Hypothesis 3, that these effects are distinctive to administrative work and are much less true of instructional work, is also supported. Hypothesis 2, that state funding produces even lower administrative burdens than local funding, is supported in terms of administrative positions in districts, but is not supported when the administrative load is measured in terms of expenditures. This weak support is consistent with our argument about the less structured character of the local environment. Similarly, the results on Hypothesis 4--that state centralization lowers administrative loads--is supported by data on expenditures but not by data on personnel.

Clearly, these results provide strong support for the idea that fragmented centralization especially increases local organizational bureaucratization. There is also support for the idea that environmental complexity that is less structured (i.e., the situation of the local environment in American education) has an impact on administrative expansion, but a more moderate one.

Conclusions

We have described the funding environments of American public school districts, to see whether the organized complexity of these environments predicts administrative elaboration in both positions and funding. Our results show that Federal funding--especially in the newer Federal educational programs--generates unusually high levels of administrative expenditures and staffing size, in comparison to state and local funding. There is some further evidence that state funding and

centralization reduce relative levels of administrative expenditures in comparison to the effects of local funding.

The results of our district-level analyses in some respects contrast with those we found in an earlier analysis, using data aggregated to the state level (Meyer et al., 1984). There, we found dramatic organizational changes over time, apparently reflecting the general expansion of state and Federal funding and authority, but few differences among states in aggregated administrative expenditures or positions dependent on particular patterns of (aggregated) state and Federal funding. It seems clear that the present analysis--conducted at the appropriate level of analysis--is to be taken much more seriously. The fact that state expansion produces much larger districts, with corresponding changes in administrative structure, is apparently inadequately controlled in the earlier analyses. Our central result on the special administrative burden created by Federal funding very much supports the results of an earlier analysis of district structures within California (Freeman, Hannan, and Hannaway, 1973); though in that study state funding was also associated with expanded administrative work (perhaps reflecting the distinctiveness of California).

These results lend considerable support to the idea that a complex or fragmented organization environment is likely to expand the administrative burdens of an organization. In the case of education, such burdens take on clear meaning--specialized outside agencies (recently, especially agencies at the Federal level) provide funds in exchange for detailed administrative controls and reports. Sometimes, there

have even been external rules in effect requiring local schooling organizations to differentiate their programs administratively in terms of the external funding and requirements involved. Our results suggest that over time, with routinization, such effects may decrease--certainly we have little evidence that the older vocational education supports are now accompanied by much special administrative pressure.

Our results come from the late 1970s--the period of high and recent reformist Federal intervention into many aspects of education. It seems likely that the administrative effects of the recent programs--designed, as they were, to penetrate and reconstruct aspects of local education--have attenuated over time. Federal funding has shifted away from special purpose grants toward block grants, and has shifted from programs attempting direct controls over local educational organizations toward programs filtered through state education departments. The long-run effects of these changes has undoubtedly been to reduce the local administrative burden, and probably to reduce the special effects of Federal funding on this burden that we have reported here. Further research covering more time periods would be useful in examining this question.

It would also be useful, in further work, to see if the earlier periods of expansion in state organizational control and funding were accompanied by similar special effects on local administration. In the short-term, the addition of a new organizational layer should always add complexity. But the state's role in education has typically been rather simple and direct-- the expansion of that role is closely tied to the

consolidation and standardization of schools and school districts. Even early on the state departments of education may have had the net effect of undercutting the complexities of local political pressures on schooling, and providing for a simpler environment for local administration to function in. From this point of view, then, the distinctive aspect of Federal involvement lies in its special lack of authority to provide simple and integrated educational control over the whole national system--and thus in its intrinsically special-purpose and fragmented character. Unlike the rise of state authority, Federal involvement did not reduce or consolidate the legitimate pressures impinging on local organization from the older levels of participation and control. It thus added complexity, in an overall sense, to the system.

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OVERVIEW OF CATEGORICAL EDUCATIONAL PROGRAMS

- .AEA: Adult Education Act
- .ESEA: Elementary and Secondary Education Act
- .EHA: Education of the Handicapped Children Act
- .NDEA: National Defense Education Act
- .VEA: Vocational Education Act
- .LSCA: Library Services and Construction Act
- .HEA: Higher Education Act

Program Name	Legislation	Description
Adult Education	AEA III	provide adult public education to the level of completion of secondary school and make available training for adult .Basic Aid (federal): adult classes for instruction in basic skills (eg. reading, writing)—below 9th .Apportionment Aid (State): for all other educational programs for adults—from 9th through 12th level
Handicapped Children	ESEA I	program for handicapped children enrolled in State-operated or State-supported schools .uses: instruction, physical education, mobility training, counseling, vocational education... .restriction: nonpublic schools, nonessential use
Migrant Children	ESEA I	program to meet the special needs of children of migratory agricultural workers or of migratory fishermen through remedial instruction, health, nutrition, psychological services, cultural development
State Administration	ESEA I	improve and expand educational programs for disadvantaged children through assistance to State education agencies, and improvement of their assistance capabilities to local education agencies—providing administrative assistance to State and local educational agencies including project development and review, approval of projects, dissemination, and evaluation of report
Neglected or Delinquent	ESEA I	program to meet the special needs of institutionalized children for whom the State has an ed. responsibility .institution for neglected children—facility operated for the care of children who are in the custody of a public agency for at least 30 days .institution for delinquent children—facility operated for the care of children who are either delinquent or in need of treatment or supervision after being charged with a violation of State law .adult correctional institution—criminal under 21

Innovation	VEA I-D	program to stimulate new ways of creating bridges between school and employment for young people and to promote cooperation between public ed. and manpower agencies and to broaden occupational aspirations and opportunities for young people
Consumer and Homemaking	VEA I-F	education programs which 1) encourage home economics, 2) encourage preparation for professional leadership, 3) are designed to prepare youths and adults for the role of homemaker, and 4) include consumer ed. programs and promotion of nutritional knowledge and food use and purchase
Cooperative Education	VEA I-G	assist States in expanding cooperative work-study programs by providing financial assistance for personnel to coordinate such programs, provide instruction related to the work experience, reimburse employers when necessary for certain added costs incurred in providing on-the-job training through work experience
Work Study	VEA I-H	this program shall be administered by the local ed. agency and made available to all youths in the area who are 1) youths who have been accepted for enrollment as a full-time student in a vocational ed. program, 2) in need of the earnings from such employment to commence or continue vocational ed. program, and 4) at least 15 years of age and less than 21 at the commencement of employment
Grants to Public Libraries	LSCA I	assist in 1) extending public library services to areas without service or with inadequate service, 2) establishing and expanding State institutional library services and lib. services to the physically handicapped, 3) establishing and expanding lib. services to the disadvantaged in urban and rural areas, and 4) strengthening the metropolitan public lib. which serve as national or regional resource centers
Library Resources	ESEA IV-B	purposes are acquisition of school library resources, textbooks, and other instructional materials; instructional equipment for use in the academic subjects, minor remodeling; testing, counseling, and guidance programs for students—consolidation of three programs: school lib. resources (ESEA II); school equipment and minor remodeling (NDEA III); guidance, counseling and testing portion of ESEA III
Interlibrary Cooperation	LSCA III	provide for the systematic and effective coordination of the resources of school, public, academic, and special lib. and special information centers for improved services of a supplementary nature to the special clientele served by each type of lib. center
Community Services	HEA I	provide support to the States and to institutions of higher ed. for the purposes of 1) to assist in the solution of community problems by strengthening community service programs of colleges and univ. 2) to plan for resource materials that will expand learning opportunities for adults
Special Student Incentives	HEA IV-A	encourage States to develop or expand programs of grant aid to help undergraduate students with substantial financial need who attend eligible postsecondary institutions

Local Education Agencies	ESEA I	program to meet the needs of educationally disadvantaged children in low-income areas whether enrolled in public or private elementary and secondary schools—in areas having a high concentration of children from low-income families
Special Incentives	ESEA I-B	provide an incentive for an increase in State and local funding for elementary and secondary ed. in State—a State ed. agency shall be entitled to this grant if the State effort index (ed. expenditure) exceeds the national effort index for public elementary and secondary ed.
Urban and Rural	ESEA I-C	
Library Resources	ESEA II	program to provide for the acquisition, cataloging, processing, and delivery of school library textbooks, and other printed and published instructional materials for use by children and teachers in public and private elementary and secondary sch.
Educational Centers	ESEA III	
Strengthening SEAs	ESEA V-A	
Handicapped in public schools	EHA VI-B	provide grants to States to assist them in providing a free appropriate public education to all handicapped children—mentally retarded, hard of hearing, deaf, visually handicapped emotionally disturbed....
Strengthening Instruction	NDEA III	
Basic Grants	VEA I-B	assist States in improving planning and in conducting vocational programs for persons of all ages in all communities who desire and need educational and training for employment
Special Needs	VEA I-B	provide vocational education special programs for persons who have academic, or economic handicaps and who require special services and assistance in order to enable them to succeed in vocational education programs
Research	VEA I-C	provide funds for research, training programs to familiarize personnel with research results and products, for developmental, experimental, or pilot programs designed to meet the special vocational needs of youth

Educational Innovation and Support	ESEA IV-C	four programs are consolidated in ESEA IV-C: ESEA III, supplementary ed. centers and services; ESEA V, strengthening State and Local ed. agencies; ESEA VIII, dropout prevention projects; and ESEA VIII (section 808) nutrition and health— 1) stimulate and assist in the provision of vitally needed educational services not available in sufficient quantity or quality, and stimulate and assist in the development and establishment of exemplary elementary and secondary school programs to serve as models for regular school programs, 2) strengthen the leadership resources of State and local ed. agencies, and assist those agencies in the establishment and improvement of programs to identify and meet ed. needs of States and of local school districts, 3) demonstration projects involving the use of innovative methods or programs which show promise of reducing the number of children who do not complete their secondary school ed. 4) demonstration projects by local ed. agencies or private ed. organizations designed to improve nutrition and health services serving areas with high concentrations of children from low-income families
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Table 1: Numbers of School District and Revenue Amounts
for Federal Programs

Program Name	Number of School Districts	Average Amount of Money
Adult Education	194	14,043
Handicapped Children	55	34,908
Migrant Children	46	81,343
Local Education Agencies	824	138,214
Special Incentive	35	35,156
Library Resources	40	1,925
Education Centers	41	39,656
Handicapped in Public School	96	36,270
Strengthening Instruction	32	1,023
Basic Grants	585	18,367
Special Needs	98	9,092
Research	13	4,224
Innovation	19	17,857
Consumer and Homemaking	600	3,143
Cooperative Education	103	14,931
Work Study	199	2,232
Library Resources	783	10,097
Educational Innovation and Support	79	30,536

N = 894

Table 2: Mean and Standard Deviations of Variables in Regression Analyses

Variables	N=9,844		N=5,578	
	Mean	Standard Deviation	Mean	Standard Deviation
Administrative Positions/Students	-	-	.004	.001
Teaching Positions/Students	-	-	.054	.010
Administrative Expenditure/Students	69.72	51.73	-	-
Teaching Expenditure/Students	893.18	262.60	-	-
ESEA/Students	43.82	44.83	42.87	42.20
Vocat.Ed./Students	2.51	7.84	2.69	7.96
NDEA/Students	.31	1.94	.34	2.13
State Funds/Students	663.92	308.57	668.09	279.26
Local Funds/Students	786.48	583.30	741.84	533.52
State Centralization Index	3.57	.53	3.60	.51
Suburban	.29	.46	.36	.48
Urban	.03	.17	.05	.21
1/Enrollment	.001	.005	.001	.001
Percent Black	.07	.16	.09	.18
Percent Poverty	.17	.14	.16	.14
South	.16	.37	.22	.42

Table 3: Effects of Federal, State, and Local Funding on School District Administration and Instructional Positions and Expenditures. All terms weighted by 1/Enrollment

	\$ Federal Funds	\$ State Funds	\$ Local Funds	State Ed. Central.	Suburban (= 1)	Urban (= 1)	Percent Black	Percent Poor	South (= 1)	Enroll- ment	Constant	# of Schools
1. Administrative Positions/1000	.001*	.0003*	.0009*	.01	.03	.28	-.01	1.47*	.12	1.0*	1,476*	.0025
2. Teaching Positions/1000	.023*	.013*	.018*	-2.5*	-.85*	3.3	9.0	22.1*	4.5*	26.3*	12,568*	.01
3. Administrative Expenditures (\$)	.086*	.048*	.047*	-4.35*	-5.07*	-9.8*	-7.42	42.3*	-9.08*	3.57	756*	-.2*
4. Teaching Expenditures	.36*	.37*	.37*	-3.01	37.3*	46.1*	130.8*	-99.9*	-72.6*	323*	1,628*	.46*

* - significant at .01

Number of Cases for Equations 1 and 2 is 5579;

Number of Cases for Equations 3 and 4 is 9844

Table 4: Effects of Various Types of Federal Funding, State, and Local Funding on School District Administration and Instructional Expenditures and Personnel. All terms weighted by 1/Enrollment.

	Federal Funds:			State Funds	Local Funds	State Central.	Suburban (= 1)	Urban (= 1)	Percent Black	Percent Poor	No. of Schools	South (= 1)	Enrollment	Constant
	ESSEA	Vocat. Ed.	NDEA											
1. Administrative Positions/1000	.006*	.0031	.0064	.0003*	.0009*	.11	.021	.26	-.05	.0*	.027	.15	1.08*	1,476
2. Teaching Positions/1000	.079*	.027	.097	.012*	.018*	-2.5*	-.96	3.15	8.63*	14.49*	.016	4.86*	27.2*	12,507
3. Administrative Expenditures (\$)	.235*	-.01	-.61*	.047*	.045*	-4.13*	-5.62*	-9.92*	-8.41	27.41*	-.19*	-8.71*	6.81	784
4. Teaching Expenditures (\$)	.81*	.96*	-1.78	.37*	.36*	-2.45	35.9*	47.2*	127.9*	-132.9*	.51*	-71.4	335*	1,709

* - significant at .01

Number of cases for equations 1 and 2 are 5579;

Number of cases for equations 3 and 4 are 9844

Table 5: Ratios of Funding Effects on Administration
and Instruction. Derived from Tables 2 and 3.

	Administrative Expenditures	Personnel	Instructional Expenditures	Personnel
Federal/ State	1.77	5.75	1.00	1.43
Federal/ Local	1.82	2.06	1.00	1.28
State/ Local	1.03	.33	1.00	1.44
ESEA/ State	4.98	22.20	2.19	6.27
ESEA/ Local	5.15	7.34	2.21	4.33